

=> file caplus		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'CAPLUS' ENTERED AT 11:50:38 ON 06 DEC 2002
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
 COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 6 Dec 2002 VOL 137 ISS 24
 FILE LAST UPDATED: 5 Dec 2002 (20021205/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

```
=> s armor
      2089 ARMOR
      107 ARMORS
L1    2127 ARMOR
      (ARMOR OR ARMORS)
```

```
=> s polymeric (l)material
      163064 POLYMERIC
      26 POLYMERICS
      163081 POLYMERIC
      (POLYMERIC OR POLYMERICS)
      1143213 MATERIAL
      1510048 MATERIALS
      2293236 MATERIAL
      (MATERIAL OR MATERIALS)
L2    32999 POLYMERIC (L)MATERIAL
```

```
=> s bullet proof or projectile proof
      1223 BULLET
      707 BULLETS
      1632 BULLET
      (BULLET OR BULLETS)
      29816 PROOF
      1529 PROOFS
      30933 PROOF
      (PROOF OR PROOFS)
      81 BULLET PROOF
      (BULLET(W) PROOF)
      12843 PROJECTILE
      6733 PROJECTILES
      16675 PROJECTILE
      (PROJECTILE OR PROJECTILES)
```

29816 PROOF
1529 PROOFS
30933 PROOF
 (PROOF OR PROOFS)
 1 PROJECTILE PROOF
 (PROJECTILE(W) PROOF)
L3 82 BULLET PROOF OR PROJECTILE PROOF

=> s impregnate or soak
 3067 IMPREGNATE
 308 IMPREGNATES
 3353 IMPREGNATE
 (IMPREGNATE OR IMPREGNATES)
 2504 SOAK
 384 SOAKS
 2816 SOAK
 (SOAK OR SOAKS)
L4 6166 IMPREGNATE OR SOAK

=> s assembly or composite or laminate
 102384 ASSEMBLY
 25337 ASSEMBLIES
 118387 ASSEMBLY
 (ASSEMBLY OR ASSEMBLIES)
 232485 COMPOSITE
 140552 COMPOSITES
 265090 COMPOSITE
 (COMPOSITE OR COMPOSITES)
 74571 LAMINATE
 56005 LAMINATES
 91828 LAMINATE
 (LAMINATE OR LAMINATES)
L5 456133 ASSEMBLY OR COMPOSITE OR LAMINATE

=> d his

(FILE 'HOME' ENTERED AT 11:50:05 ON 06 DEC 2002)

FILE 'CAPLUS' ENTERED AT 11:50:38 ON 06 DEC 2002

L1 2127 S ARMOR
L2 32999 S POLYMERIC (L) MATERIAL
L3 82 S BULLET PROOF OR PROJECTILE PROOF
L4 6166 S IMPREGNATE OR SOAK
L5 456133 S ASSEMBLY OR COMPOSITE OR LAMINATE

=> s l1 and l2 and l4 and l5
L6 0 L1 AND L2 AND L4 AND L5

=> s l2 and l3 and l4 and l5
L7 0 L2 AND L3 AND L4 AND L5

=> s l1 and l2 and l3
L8 0 L1 AND L2 AND L3

=> s l1 and l2 and l5
L9 6 L1 AND L2 AND L5

=> d l9 1-6 bib, abs

L9 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2002 ACS
AN 2002:864317 CAPLUS
DN 137:356908
TI Method for making boron carbide containing ceramics in the form of films,
 fibers, and nanostructured materials

IN Sneddon, Larry G.; Pender, Mark J.
PA Trustees of the University of Pennsylvania, USA
SO U.S., 14 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6478994	B1	20021112	US 2000-539182	20000330
AB	The method for making a boron carbide contg. ceramic involves pyrolyzing a precursor having .gtoreq.1 monosubstituted decaboranyl groups and .gtoreq.1 substituting group contg. carbon. The precursor may be mol., e.g., comprising two decaboranyl groups linked by a single substituting group, or polymeric , in which case the decaboranyl groups are part of the pendant group of the polymer while a portion of the substituting group makes up the polymer backbone. Examples of the precursor are 1-Polyhexenyldecaborane, dipropyldecaboranyl, polyallyldimethylsilanepropyldecaborane, and copolymer of allyltrimethylsilane and hexenyldecaborane. In either case, the substituting group may be a hydrocarbon, in which case boron carbide may be formed. Alternatively, the substituting group may contain carbon and another ceramic forming element (i.e., other than boron or carbon), such as silicon, nitrogen, or phosphorous, in which case a composite including boron carbide is formed. The precursors are relatively stable in air, allow access to both boron rich and carbon rich materials , and further allow for the formation of films, fibers, and nanostructured materials more easily than other precursors. The resulting ceramic is suitable as an abrasive wear-resistant material , ceramic armor , a neutron moderator in nuclear reactors, and potentially, for power generation in deep space flight applications.				

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2002 ACS
AN 2001:814980 CAPLUS
DN 137:94399
TI Carbon, polyethylene and PBO hybrid fiber **composites** for structural lightweight **armor**
AU Larsson, Fritz; Svensson, Lars
CS Protection and Materials Department, Weapons and Protection Division, Swedish Defence Research Agency, Tumba, SE-147 25, Swed.
SO Composites, Part A: Applied Science and Manufacturing (2001), Volume Date 2002, 33A(2), 221-231
CODEN: CASMFJ; ISSN: 1359-835X
PB Elsevier Science Ltd.
DT Journal
LA English
AB The mech. and impact properties of hybrid **composite materials** based on epoxy resin, Araldite LY-5052 and carbon fibers (T300), S-2- glass fibers, Aramid fibers, SK-66 and polyethylene fiber fabrics, and Zylon AS (polybenzobisoxazole) (PBO) were studied, with a view to using these **materials** in lightwt. structural **armor**. **Laminates** were manufd. by resin transfer molding and specific ballistic properties and specific compressive strength after impact were detd. The **polymeric** fibers contributed to improved ballistic properties of **composites**. The specific compressive strength decreased slightly, but was more than compensated for by the improved residual impact energy and impact strength.

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2002 ACS
AN 2001:185838 CAPLUS

DN 134:223771
 TI Waste glass **composites** and their manufacture
 IN Roddis, James
 PA Sheffield Hallam University, UK
 SO PCT Int. Appl., 34 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001018100	A1	20010315	WO 2000-GB3347	20000901
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1218442	A1	20020703	EP 2000-956697	20000901
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, IE, SI, LT, LV, FI, RO, MK, CY, AL				

PRAI GB 1999-20843 A 19990904
 WO 2000-GB3347 W 20000901

AB Title solid **composites**, with high mech. strength useful for floor materials, body **armors**, and radiation-resistant articles (from high Pb- and/or Ba-contg. glass wastes), comprise glass granules and binder resins. A compn. comprising an epoxy resin (bisphenol A and F, alkyl glycidyl ethers, and epoxysilane coupler) 11.17, octahydro-4,7-methano-1H-indendimethylamine 5.65, a pigment 0.06, 0-4 mm pulverized waste glass 42.66, and 4-6 mm pulverized waste glass 40.46% gave a **composite** with high impact resistance (with penetration 0-0.5 mm).

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2002 ACS
 AN 2000:205672 CAPLUS
 DN 132:238343
 TI Penetration-resistant and knife-proof polybenzazole fabric material
 IN Nomura, Yukihiro
 PA Toyobo Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF

DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000088497	A2	20000331	JP 1998-261620	19980916
AB	The material is a multilayer laminates (basis wt. 3000-6000 g/m ²) of cloth (basis wt. 100-1000 g/m ²) of polybenzazole fibers with tensile strength 30 g/d.				

L9 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2002 ACS
 AN 1999:83522 CAPLUS
 DN 130:223873
 TI Confined compression of elastic adhesives at high rates of strain
 AU Martinez, M. A.; Chocron, I. S.; Rodriguez, J.; Galvez, V. Sanchez; Sastre, L. A.
 CS Departamento de Ingenieria (Area de Materiales), Escuela Politecnica Superior, Universidad Carlos III de Madrid, Madrid, 280911, Spain

SO International Journal of Adhesion and Adhesives (1998), 18(6), 375-383
 CODEN: IJAADK; ISSN: 0143-7496
 PB Elsevier Science Ltd.
 DT Journal
 LA English
 AB Elastic adhesives are used in **composite armors** to bond the ceramic front face and the metallic backing plate. The mech. behavior of different elastic adhesives under impact loads have been studied by means of dynamic compression tests performed in a split Hopkinson pressure bar. In these expts., the stress-strain curve of confined materials at high strain rates and the capability of transmitting and reflecting the impact energy have been detd. The influence of thickness and aging on the response of the adhesive layer have been also considered.

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2002 ACS
 AN 1991:248377 CAPLUS
 DN 114:248377
 TI Ballistic energy absorption of **composites**
 AU Lin, L. C.; Bhatnagar, A.; Chang, H. W.
 CS Allied-Signal, Inc., Petersburg, VA, 23804, USA
 SO International SAMPE Technical Conference (1990), 22(Adv. Mater.), 1-13
 CODEN: ISTCEF; ISSN: 0892-2624
 DT Journal
 LA English
 AB The energy absorption of a ballistic projectile against a **composite armor** material was a complex combination of the striking velocity, energy dissipation during the penetration, projectile characteristics, and the material properties of the target. Five types of fragment-simulated projectiles were used to generate the energy absorption data and 3 types of **composite armors** were studied: ultra-high-mol.-wt. polyethylene/vinyl ester/polyurethane, aramide/phenolic resin/poly(vinyl butyral), and S-2 glass fiber/phenolic resin/poly(vinyl butyral). From the test data, a simple math. model was developed based on striking energy, diam. of the projectile, and characteristics of the target **composite armor** materials.

=> log y

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	35.64	35.85
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-3.72	-3.72

STN INTERNATIONAL LOGOFF AT 11:54:09 ON 06 DEC 2002

=> file caplus		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'CAPLUS' ENTERED AT 11:50:38 ON 06 DEC 2002
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
 COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 6 Dec 2002 VOL 137 ISS 24
 FILE LAST UPDATED: 5 Dec 2002 (20021205/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

```
=> s armor
      2089 ARMOR
      107 ARMORS
L1    2127 ARMOR
      (ARMOR OR ARMORS)
```

```
=> s polymeric (l)material
      163064 POLYMERIC
      26 POLYMERICS
      163081 POLYMERIC
      (POLYMERIC OR POLYMERICS)
      1143213 MATERIAL
      1510048 MATERIALS
      2293236 MATERIAL
      (MATERIAL OR MATERIALS)
L2    32999 POLYMERIC (L)MATERIAL
```

```
=> s bullet proof or projectile proof
      1223 BULLET
      707 BULLETS
      1632 BULLET
      (BULLET OR BULLETS)
      29816 PROOF
      1529 PROOFS
      30933 PROOF
      (PROOF OR PROOFS)
      81 BULLET PROOF
      (BULLET(W) PROOF)
      12843 PROJECTILE
      6733 PROJECTILES
      16675 PROJECTILE
      (PROJECTILE OR PROJECTILES)
```

29816 PROOF
1529 PROOFS
30933 PROOF
 (PROOF OR PROOFS)
 1 PROJECTILE PROOF
 (PROJECTILE(W) PROOF)
L3 82 BULLET PROOF OR PROJECTILE PROOF

=> s impregnate or soak
 3067 IMPREGNATE
 308 IMPREGNATES
 3353 IMPREGNATE
 (IMPREGNATE OR IMPREGNATES)
 2504 SOAK
 384 SOAKS
 2816 SOAK
 (SOAK OR SOAKS)
L4 6166 IMPREGNATE OR SOAK

=> s assembly or composite or laminate
 102384 ASSEMBLY
 25337 ASSEMBLIES
 118387 ASSEMBLY
 (ASSEMBLY OR ASSEMBLIES)
 232485 COMPOSITE
 140552 COMPOSITES
 265090 COMPOSITE
 (COMPOSITE OR COMPOSITES)
 74571 LAMINATE
 56005 LAMINATES
 91828 LAMINATE
 (LAMINATE OR LAMINATES)
L5 456133 ASSEMBLY OR COMPOSITE OR LAMINATE

=> d his

(FILE 'HOME' ENTERED AT 11:50:05 ON 06 DEC 2002)

FILE 'CAPLUS' ENTERED AT 11:50:38 ON 06 DEC 2002

L1 2127 S ARMOR
L2 32999 S POLYMERIC (L) MATERIAL
L3 82 S BULLET PROOF OR PROJECTILE PROOF
L4 6166 S IMPREGNATE OR SOAK
L5 456133 S ASSEMBLY OR COMPOSITE OR LAMINATE

=> s l1 and l2 and l4 and l5
L6 0 L1 AND L2 AND L4 AND L5

=> s l2 and l3 and l4 and l5
L7 0 L2 AND L3 AND L4 AND L5

=> s l1 and l2 and l3
L8 0 L1 AND L2 AND L3

=> s l1 and l2 and l5
L9 6 L1 AND L2 AND L5

=> d l9 1-6 bib, abs

L9 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2002 ACS
AN 2002:864317 CAPLUS
DN 137:356908

TI Method for making boron carbide containing ceramics in the form of films,
 fibers, and nanostructured materials

IN Sneddon, Larry G.; Pender, Mark J.
PA Trustees of the University of Pennsylvania, USA
SO U.S., 14 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6478994	B1	20021112	US 2000-539182	20000330

AB The method for making a boron carbide contg. ceramic involves pyrolyzing a precursor having .gtoreq.1 monosubstituted decaboranyl groups and .gtoreq.1 substituting group contg. carbon. The precursor may be mol., e.g., comprising two decaboranyl groups linked by a single substituting group, or **polymeric**, in which case the decaboranyl groups are part of the pendant group of the polymer while a portion of the substituting group makes up the polymer backbone. Examples of the precursor are 1-Polyhexenyldecaborane, dipropyldecaboranyl, polyallyldimethylsilanepropyldecaborane, and copolymer of allyltrimethylsilane and hexenyldecaborane. In either case, the substituting group may be a hydrocarbon, in which case boron carbide may be formed. Alternatively, the substituting group may contain carbon and another ceramic forming element (i.e., other than boron or carbon), such as silicon, nitrogen, or phosphorous, in which case a **composite** including boron carbide is formed. The precursors are relatively stable in air, allow access to both boron rich and carbon rich **materials**, and further allow for the formation of films, fibers, and nanostructured **materials** more easily than other precursors. The resulting ceramic is suitable as an abrasive wear-resistant **material**, ceramic **armor**, a neutron moderator in nuclear reactors, and potentially, for power generation in deep space flight applications.

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2002 ACS
AN 2001:814980 CAPLUS
DN 137:94399
TI Carbon, polyethylene and PBO hybrid fiber **composites** for structural lightweight **armor**
AU Larsson, Fritz; Svensson, Lars
CS Protection and Materials Department, Weapons and Protection Division, Swedish Defence Research Agency, Tumba, SE-147 25, Swed.
SO Composites, Part A: Applied Science and Manufacturing (2001), Volume Date 2002, 33A(2), 221-231
CODEN: CASMFJ; ISSN: 1359-835X
PB Elsevier Science Ltd.
DT Journal
LA English
AB The mech. and impact properties of hybrid **composite materials** based on epoxy resin, Araldite LY-5052 and carbon fibers (T300), S-2- glass fibers, Aramid fibers, SK-66 and polyethylene fiber fabrics, and Zylon AS (polybenzobisoxazole) (PBO) were studied, with a view to using these **materials** in lightwt. structural **armor**. **Laminates** were manufd. by resin transfer molding and specific ballistic properties and specific compressive strength after impact were detd. The **polymeric** fibers contributed to improved ballistic properties of **composites**. The specific compressive strength decreased slightly, but was more than compensated for by the improved residual impact energy and impact strength.

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2002 ACS
AN 2001:185838 CAPLUS

DN 134:223771
 TI Waste glass **composites** and their manufacture
 IN Roddis, James
 PA Sheffield Hallam University, UK
 SO PCT Int. Appl., 34 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001018100	A1	20010315	WO 2000-GB3347	20000901
	W:				
	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW:				
	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1218442	A1	20020703	EP 2000-956697	20000901
	R:				
	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, IE, SI, LT, LV, FI, RO, MK, CY, AL				
PRAI	GB 1999-20843	A	19990904		
	WO 2000-GB3347	W	20000901		

AB Title solid **composites**, with high mech. strength useful for floor materials, body **armors**, and radiation-resistant articles (from high Pb- and/or Ba-contg. glass wastes), comprise glass granules and binder resins. A compn. comprising an epoxy resin (bisphenol A and F, alkyl glycidyl ethers, and epoxysilane coupler) 11.17, octahydro-4,7-methano-1H-indendimethylamine 5.65, a pigment 0.06, 0-4 mm pulverized waste glass 42.66, and 4-6 mm pulverized waste glass 40.46% gave a **composite** with high impact resistance (with penetration 0-0.5 mm).

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2002 ACS
 AN 2000:205672 CAPLUS
 DN 132:238343
 TI Penetration-resistant and knife-proof polybenzazole fabric material
 IN Nomura, Yukihiro
 PA Toyobo Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000088497	A2	20000331	JP 1998-261620	19980916
AB	The material is a multilayer laminated (basis wt. 3000-6000 g/m ²) of cloth (basis wt. 100-1000 g/m ²) of polybenzazole fibers with tensile strength 30 g/d.				

L9 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2002 ACS
 AN 1999:83522 CAPLUS
 DN 130:223873
 TI Confined compression of elastic adhesives at high rates of strain
 AU Martinez, M. A.; Chocron, I. S.; Rodriguez, J.; Galvez, V. Sanchez; Sastre, L. A.
 CS Departamento de Ingenieria (Area de Materiales), Escuela Politecnica Superior, Universidad Carlos III de Madrid, Madrid, 280911, Spain

SO International Journal of Adhesion and Adhesives (1998), 18(6), 375-383
 CODEN: IJAADK; ISSN: 0143-7496
 PB Elsevier Science Ltd.
 DT Journal
 LA English
 AB Elastic adhesives are used in **composite armors** to bond the ceramic front face and the metallic backing plate. The mech. behavior of different elastic adhesives under impact loads have been studied by means of dynamic compression tests performed in a split Hopkinson pressure bar. In these expts., the stress-strain curve of confined materials at high strain rates and the capability of transmitting and reflecting the impact energy have been detd. The influence of thickness and aging on the response of the adhesive layer have been also considered.

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2002 ACS
 AN 1991:248377 CAPLUS
 DN 114:248377
 TI Ballistic energy absorption of **composites**
 AU Lin, L. C.; Bhatnagar, A.; Chang, H. W.
 CS Allied-Signal, Inc., Petersburg, VA, 23804, USA
 SO International SAMPE Technical Conference (1990), 22(Adv. Mater.), 1-13
 CODEN: ISTCEF; ISSN: 0892-2624
 DT Journal
 LA English
 AB The energy absorption of a ballistic projectile against a **composite armor** material was a complex combination of the striking velocity, energy dissipation during the penetration, projectile characteristics, and the material properties of the target. Five types of fragment-simulated projectiles were used to generate the energy absorption data and 3 types of **composite armors** were studied: ultra-high-mol.-wt. polyethylene/vinyl ester/polyurethane, aramide/phenolic resin/poly(vinyl butyral), and S-2 glass fiber/phenolic resin/poly(vinyl butyral). From the test data, a simple math. model was developed based on striking energy, diam. of the projectile, and characteristics of the target **composite armor** materials.

=> log y		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	35.64	35.85
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-3.72	-3.72

STN INTERNATIONAL LOGOFF AT 11:54:09 ON 06 DEC 2002

=> FILE CAPLUS		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'CAPLUS' ENTERED AT 13:37:57 ON 06 DEC 2002
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
 COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is

held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 6 Dec 2002 VOL 137 ISS 24
FILE LAST UPDATED: 5 Dec 2002 (20021205/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

=> s assembly or composite or laminate

102384 ASSEMBLY
25337 ASSEMBLIES
118387 ASSEMBLY
(ASSEMBLY OR ASSEMBLIES)
232485 COMPOSITE
140552 COMPOSITES
265090 COMPOSITE
(COMPOSITE OR COMPOSITES)
74571 LAMINATE
56005 LAMINATES
91828 LAMINATE
(LAMINATE OR LAMINATES)

L1 456133 ASSEMBLY OR COMPOSITE OR LAMINATE

=> s polymeric (l) material

163064 POLYMERIC
26 POLYMERICS
163081 POLYMERIC
(POLYMERIC OR POLYMERICS)
1143213 MATERIAL
1510048 MATERIALS
2293236 MATERIAL
(MATERIAL OR MATERIALS)

L2 32999 POLYMERIC (L) MATERIAL

=> s impregnate or soak

3067 IMPREGNATE
308 IMPREGNATES
3353 IMPREGNATE
(IMPREGNATE OR IMPREGNATES)
2504 SOAK
384 SOAKS
2816 SOAK
(SOAK OR SOAKS)

L3 6166 IMPREGNATE OR SOAK

=> s armor

2089 ARMOR
107 ARMORS

L4 2127 ARMOR
(ARMOR OR ARMORS)

=> s bullet(l) proof or projectile (l)proof

1223 BULLET
 707 BULLETS
 1632 BULLET
 (BULLET OR BULLETS)
 29816 PROOF
 1529 PROOFS
 30933 PROOF
 (PROOF OR PROOFS)
 85 BULLET(L) PROOF
 12843 PROJECTILE
 6733 PROJECTILES
 16675 PROJECTILE
 (PROJECTILE OR PROJECTILES)
 29816 PROOF
 1529 PROOFS
 30933 PROOF
 (PROOF OR PROOFS)
 37 PROJECTILE (L) PROOF
 L5 114 BULLET(L) PROOF OR PROJECTILE (L) PROOF

=> d his

(FILE 'HOME' ENTERED AT 13:37:22 ON 06 DEC 2002)

FILE 'CAPLUS' ENTERED AT 13:37:57 ON 06 DEC 2002

L1 456133 S ASSEMBLY OR COMPOSITE OR LAMINATE
 L2 32999 S POLYMERIC (L) MATERIAL
 L3 6166 S IMPREGNATE OR SOAK
 L4 2127 S ARMOR
 L5 114 S BULLET(L) PROOF OR PROJECTILE (L) PROOF

=> s l1 and l2 and l4

L6 6 L1 AND L2 AND L4

=> s l1 and l2 and l5

L7 1 L1 AND L2 AND L5

=> d l7 bib,abs

L7 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2002 ACS

AN 1973:101402 CAPLUS

DN 78:101402

TI Glass **laminates**

IN Mertens, Helmut

SO Ger. Offen., 22 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN. CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2134750	A1	19730201	DE 1971-2134750	19710712
	DE 2134750	B2	19730705		
	BE 786191	A1	19730112	BE 1972-119790	19720712
	FR 2145636	A1	19730223	FR 1972-25266	19720712
PRAI	DE 1971-2134750		19710712		

AB Glass **laminates**, used for curved windshields and **bullet**
 -**proof** or pressure-resistant plates, were made from .gtoreq.2
 inorg. and (or) org. glass plates (such as polyethylene), contg.
polymeric profile strips at 1-2 edges for distancing and
 tightening, by filling the interspace with monomeric **material**,
 e.g. Me methacrylate, deaerating, and polymg. Thus, a cylindrically
 curved windshield made from 2 glass plates and Me methacrylate interlayer
 had good transparency and adhesive strength.

=> d 16 1-6 bib,abs

L6 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2002 ACS
AN 2002:864317 CAPLUS
DN 137:356908
TI Method for making boron carbide containing ceramics in the form of films,
fibers, and nanostructured materials
IN Sneddon, Larry G.; Pender, Mark J.
PA Trustees of the University of Pennsylvania, USA
SO U.S., 14 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6478994	B1	20021112	US 2000-539182	20000330
AB	The method for making a boron carbide contg. ceramic involves pyrolyzing a precursor having .gtoreq.1 monosubstituted decaboranyl groups and .gtoreq.1 substituting group contg. carbon. The precursor may be mol., e.g., comprising two decaboranyl groups linked by a single substituting group, or polymeric , in which case the decaboranyl groups are part of the pendant group of the polymer while a portion of the substituting group makes up the polymer backbone. Examples of the precursor are 1-Polyhexenyldecaborane, dipropyldecaboranyl, polyallyldimethylsilanepropyldecaborane, and copolymer of allyltrimethylsilane and hexenyldecaborane. In either case, the substituting group may be a hydrocarbon, in which case boron carbide may be formed. Alternatively, the substituting group may contain carbon and another ceramic forming element (i.e., other than boron or carbon), such as silicon, nitrogen, or phosphorous, in which case a composite including boron carbide is formed. The precursors are relatively stable in air, allow access to both boron rich and carbon rich materials , and further allow for the formation of films, fibers, and nanostructured materials more easily than other precursors. The resulting ceramic is suitable as an abrasive wear-resistant material , ceramic armor , a neutron moderator in nuclear reactors, and potentially, for power generation in deep space flight applications.				
RE.CNT	13	THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD			
		ALL CITATIONS AVAILABLE IN THE RE FORMAT			

L6 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2002 ACS
AN 2001:814980 CAPLUS
DN 137:94399
TI Carbon, polyethylene and PBO hybrid fiber **composites** for structural lightweight **armor**
AU Larsson, Fritz; Svensson, Lars
CS Protection and Materials Department, Weapons and Protection Division, Swedish Defence Research Agency, Tumba, SE-147 25, Swed.
SO Composites, Part A: Applied Science and Manufacturing (2001), Volume Date 2002, 33A(2), 221-231
CODEN: CASMFJ; ISSN: 1359-835X
PB Elsevier Science Ltd.
DT Journal
LA English
AB The mech. and impact properties of hybrid **composite materials** based on epoxy resin, Araldite LY-5052 and carbon fibers (T300), S-2- glass fibers, Aramid fibers, SK-66 and polyethylene fiber fabrics, and Zylon AS (polybenzobisoxazole) (PBO) were studied, with a view to using these **materials** in lightwt. structural **armor**. **Laminates** were manufd. by resin transfer molding and specific ballistic properties and specific compressive strength after

impact were detd. The **polymeric** fibers contributed to improved ballistic properties of **composites**. The specific compressive strength decreased slightly, but was more than compensated for by the improved residual impact energy and impact strength.

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2002 ACS
AN 2001:185838 CAPLUS
DN 134:223771
TI Waste glass **composites** and their manufacture
IN Roddis, James
PA Sheffield Hallam University, UK
SO PCT Int. Appl., 34 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001018100	A1	20010315	WO 2000-GB3347	20000901
	W:		AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM		
	RW:		GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG		
	EP 1218442	A1	20020703	EP 2000-956697	20000901
	R:		AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, IE, SI, LT, LV, FI, RO, MK, CY, AL		

PRAI GB 1999-20843 A 19990904
WO 2000-GB3347 W 20000901

AB Title solid **composites**, with high mech. strength useful for floor materials, body **armors**, and radiation-resistant articles (from high Pb- and/or Ba-contg. glass wastes), comprise glass granules and binder resins. A compn. comprising an epoxy resin (bisphenol A and F, alkyl glycidyl ethers, and epoxysilane coupler) 11.17, octahydro-4,7-methano-1H-indendimethylamine 5.65, a pigment 0.06, 0-4 mm pulverized waste glass 42.66, and 4-6 mm pulverized waste glass 40.46% gave a **composite** with high impact resistance (with penetration 0-0.5 mm).

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2002 ACS
AN 2000:205672 CAPLUS
DN 132:238343
TI Penetration-resistant and knife-proof polybenzazole fabric material
IN Nomura, Yukihiro
PA Toyobo Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000088497	A2	20000331	JP 1998-261620	19980916
AB	The material is a multilayer laminated (basis wt. 3000-6000 g/m ²) of cloth (basis wt. 100-1000 g/m ²) of polybenzazole fibers with tensile strength 30 g/d.				

L6 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2002 ACS
 AN 1999:83522 CAPLUS
 DN 130:223873
 TI Confined compression of elastic adhesives at high rates of strain
 AU Martinez, M. A.; Chocron, I. S.; Rodriguez, J.; Galvez, V. Sanchez;
 Sastre, L. A.
 CS Departamento de Ingenieria (Area de Materiales), Escuela Politecnica
 Superior, Universidad Carlos III de Madrid, Madrid, 280911, Spain
 SO International Journal of Adhesion and Adhesives (1998), 18(6), 375-383
 CODEN: IJAADK; ISSN: 0143-7496
 PB Elsevier Science Ltd.
 DT Journal
 LA English
 AB Elastic adhesives are used in **composite armors** to bond
 the ceramic front face and the metallic backing plate. The mech. behavior
 of different elastic adhesives under impact loads have been studied by
 means of dynamic compression tests performed in a split Hopkinson pressure
 bar. In these expts., the stress-strain curve of confined materials at
 high strain rates and the capability of transmitting and reflecting the
 impact energy have been detd. The influence of thickness and aging on the
 response of the adhesive layer have been also considered.
 RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2002 ACS
 AN 1991:248377 CAPLUS
 DN 114:248377
 TI Ballistic energy absorption of **composites**
 AU Lin, L. C.; Bhatnagar, A.; Chang, H. W.
 CS Allied-Signal, Inc., Petersburg, VA, 23804, USA
 SO International SAMPE Technical Conference (1990), 22(Adv. Mater.), 1-13
 CODEN: ISTCEF; ISSN: 0892-2624
 DT Journal
 LA English
 AB The energy absorption of a ballistic projectile against a
composite armor material was a complex combination of
 the striking velocity, energy dissipation during the penetration,
 projectile characteristics, and the material properties of the target.
 Five types of fragment-simulated projectiles were used to generate the
 energy absorption data and 3 types of **composite armors**
 were studied: ultra-high-mol.-wt. polyethylene/vinyl ester/polyurethane,
 aramide/phenolic resin/poly(vinyl butyral), and S-2 glass fiber/phenolic
 resin/poly(vinyl butyral). From the test data, a simple math. model was
 developed based on striking energy, diam. of the projectile, and
 characteristics of the target **composite armor**
 materials.

=> d his

(FILE 'HOME' ENTERED AT 13:37:22 ON 06 DEC 2002)

FILE 'CAPLUS' ENTERED AT 13:37:57 ON 06 DEC 2002

L1 456133 S ASSEMBLY OR COMPOSITE OR LAMINATE
 L2 32999 S POLYMERIC (L) MATERIAL
 L3 6166 S IMPREGNATE OR SOAK
 L4 2127 S ARMOR
 L5 114 S BULLET(L) PROOF OR PROJECTILE (L) PROOF
 L6 6 S L1 AND L2 AND L4
 L7 1 S L1 AND L2 AND L5

=> s heavy duty cloth material
 292505 HEAVY

79 HEAVIES
 292559 HEAVY
 (HEAVY OR HEAVIES)
 8903 DUTY
 623 DUTIES
 9485 DUTY
 (DUTY OR DUTIES)
 29177 CLOTH
 4907 CLOTHS
 31369 CLOTH
 (CLOTH OR CLOTHS)
 1143213 MATERIAL
 1510048 MATERIALS
 2293236 MATERIAL
 (MATERIAL OR MATERIALS)

L8 0 HEAVY DUTY CLOTH MATERIAL
 (HEAVY (W) DUTY (W) CLOTH (W) MATERIAL)

=> s heavy (l) duty (l) cloth (l)material

292505 HEAVY
 79 HEAVIES
 292559 HEAVY
 (HEAVY OR HEAVIES)
 8903 DUTY
 623 DUTIES
 9485 DUTY
 (DUTY OR DUTIES)
 29177 CLOTH
 4907 CLOTHS
 31369 CLOTH
 (CLOTH OR CLOTHS)
 1143213 MATERIAL
 1510048 MATERIALS
 2293236 MATERIAL
 (MATERIAL OR MATERIALS)

L9 6 HEAVY (L) DUTY (L) CLOTH (L)MATERIAL

=> s kevlar or spectra

3044 KEVLAR
 3 KEVLARS
 3045 KEVLAR
 (KEVLAR OR KEVLARS)
 950507 SPECTRA
 93 SPECTRAS
 950551 SPECTRA
 (SPECTRA OR SPECTRAS)

L10 953489 KEVLAR OR SPECTRA

=> d his

(FILE 'HOME' ENTERED AT 13:37:22 ON 06 DEC 2002)

FILE 'CAPLUS' ENTERED AT 13:37:57 ON 06 DEC 2002

L1 456133 S ASSEMBLY OR COMPOSITE OR LAMINATE
 L2 32999 S POLYMERIC (L) MATERIAL
 L3 6166 S IMPREGNATE OR SOAK
 L4 2127 S ARMOR
 L5 114 S BULLET(L) PROOF OR PROJECTILE (L) PROOF
 L6 6 S L1 AND L2 AND L4
 L7 1 S L1 AND L2 AND L5
 L8 0 S HEAVY DUTY CLOTH MATERIAL
 L9 6 S HEAVY (L) DUTY (L) CLOTH (L)MATERIAL
 L10 953489 S KEVLAR OR SPECTRA

```
=> s l1 and l2 and l10 and l4
L11          0 L1 AND L2 AND L10 AND L4

=> s l4 and l10 and l1
L12          32 L4 AND L10 AND L1

=> s glass or glass ceramics or spinel or polymethylmethacrylate
592189 GLASS
111071 GLASSES
617690 GLASS
      (GLASS OR GLASSES)
592189 GLASS
111071 GLASSES
617690 GLASS
      (GLASS OR GLASSES)
150973 CERAMICS
      1 CERAMICSES
150973 CERAMICS
      (CERAMICS OR CERAMICSES)
13538 GLASS CERAMICS
      (GLASS(W) CERAMICS)
33261 SPINEL
7940 SPINELS
35514 SPINEL
      (SPINEL OR SPINELS)
2646 POLYMETHYLMETHACRYLATE
      13 POLYMETHYLMETHACRYLATES
2658 POLYMETHYLMETHACRYLATE
      (POLYMETHYLMETHACRYLATE OR POLYMETHYLMETHACRYLATES)
L13          653089 GLASS OR GLASS CERAMICS OR SPINEL OR POLYMETHYLMETHACRYLATE

=> s l12 and l13
L14          10 L12 AND L13

=> d hi
'HI' IS NOT A VALID FORMAT FOR FILE 'CAPLUS'
```

The following are valid formats:

```
ABS ----- GI and AB
ALL ----- BIB, AB, IND, RE
APPS ----- AI, PRAI
BIB ----- AN, plus Bibliographic Data and PI table (default)
CAN ----- List of CA abstract numbers without answer numbers
CBIB ----- AN, plus Compressed Bibliographic Data
DALL ----- ALL, delimited (end of each field identified)
DMAX ----- MAX, delimited for post-processing
FAM ----- AN, PI and PRAI in table, plus Patent Family data
FBIB ----- AN, BIB, plus Patent FAM
IND ----- Indexing data
IPC ----- International Patent Classifications
MAX ----- ALL, plus Patent FAM, RE
PATS ----- PI, SO
SAM ----- CC, SX, TI, ST, IT
SCAN ----- CC, SX, TI, ST, IT (random display, no answer numbers;
              SCAN must be entered on the same line as the DISPLAY,
              e.g., D SCAN or DISPLAY SCAN)
STD ----- BIB, IPC, and NCL

IABS ----- ABS, indented with text labels
IALL ----- ALL, indented with text labels
IBIB ----- BIB, indented with text labels
IMAX ----- MAX, indented with text labels
ISTD ----- STD, indented with text labels
```

OBIB ----- AN, plus Bibliographic Data (original)
 OIBIB ----- OBIB, indented with text labels

SBIB ----- BIB, no citations
 SIBIB ----- IBIB, no citations

HIT ----- Fields containing hit terms
 HITIND ----- IC, ICA, ICI, NCL, CC and index field (ST and IT)
 containing hit terms
 HITRN ----- HIT RN and its text modification
 HITSTR ----- HIT RN, its text modification, its CA index name, and
 its structure diagram
 HITSEQ ----- HIT RN, its text modification, its CA index name, its
 structure diagram, plus NTE and SEQ fields
 FHITSTR ----- First HIT RN, its text modification, its CA index name, and
 its structure diagram
 FHITSEQ ----- First HIT RN, its text modification, its CA index name, its
 structure diagram, plus NTE and SEQ fields
 KWIC ----- Hit term plus 20 words on either side
 OCC ----- Number of occurrence of hit term and field in which it occurs

To display a particular field or fields, enter the display field codes. For a list of the display field codes, enter HELP DFIELDS at an arrow prompt (=>). Examples of formats include: TI; TI,AU; BIB,ST; TI,IND; TI,SO. You may specify the format fields in any order and the information will be displayed in the same order as the format specification.

All of the formats (except for SAM, SCAN, HIT, HITIND, HITRN, HITSTR, FHITSTR, HITSEQ, FHITSEQ, KWIC, and OCC) may be used with DISPLAY ACC to view a specified Accession Number.
 ENTER DISPLAY FORMAT (BIB):end

=>

=>

=>

=> d his

(FILE 'HOME' ENTERED AT 13:37:22 ON 06 DEC 2002)

FILE 'CAPLUS' ENTERED AT 13:37:57 ON 06 DEC 2002

```
L1      456133 S ASSEMBLY OR COMPOSITE OR LAMINATE
L2      32999 S POLYMERIC (L) MATERIAL
L3      6166 S IMPREGNATE OR SOAK
L4      2127 S ARMOR
L5      114 S BULLET(L) PROOF OR PROJECTILE (L) PROOF
L6      6 S L1 AND L2 AND L4
L7      1 S L1 AND L2 AND L5
L8      0 S HEAVY DUTY CLOTH MATERIAL
L9      6 S HEAVY (L) DUTY (L) CLOTH (L) MATERIAL
L10     953489 S KEVLAR OR SPECTRA
L11     0 S L1 AND L2 AND L10 AND L4
L12     32 S L4 AND L10 AND L1
L13     653089 S GLASS OR GLASS CERAMICS OR SPINEL OR POLYMETHYLMETHACRYLATE
L14     10 S L12 AND L13
```

=> d l4 1-10 bib,abs

L4 ANSWER 1 OF 2127 CAPLUS COPYRIGHT 2002 ACS
 AN 2002:914169 CAPLUS

DN 137:355059
 TI Lightweight ballistic projectiles with improved penetration
 IN Rabu, Yann
 PA Fr.
 SO Fr. Demande, 5 pp.
 CODEN: FRXXBL
 DT Patent
 LA French
 FAN. CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2820816	A3	20020816	FR 2001-2075	20010215

AB The projectiles have an **armor** point of Cu, treated to increase the power of penetration upon impact; this also assures improved solidity of the projectile upon impact. The amt. of W in the cap is very high. The projectiles are fabricated by cold pressing; the internal core comprises compressed bronze and copper powder and is <100 .mu. in size, and the bullet is Pb with W ballast. Fine grooves provide stabilization of the projectile. The projectiles can be used for law enforcement or by armies as well as in target practice or leisure shooting.

L4 ANSWER 2 OF 2127 CAPLUS COPYRIGHT 2002 ACS

AN 2002:876928 CAPLUS

TI Properties, use and health effects of depleted uranium (DU): a general overview

AU Bleise, A.; Danesi, P. R.; Burkart, W.

CS Wagramer Strasse 5, International Atomic Energy Agency (IAEA), Department of Nuclear Science and Applications, P.O. Box 100, Vienna, A-1400, Austria

SO Journal of Environmental Radioactivity (2003), 64(2-3), 93-112

CODEN: JERAEE; ISSN: 0265-931X

PB Elsevier Science Ltd.

DT Journal

LA English

AB Depleted uranium (DU), a waste product of uranium enrichment, has several civilian and military applications. It was used as **armor**-piercing ammunition in international military conflicts and was claimed to contribute to health problems, known as the Gulf War Syndrome and recently as the Balkan Syndrome. This led to renewed efforts to assess the environmental consequences and the health impact of the use of DU. The radiol. and chem. properties of DU can be compared to those of natural uranium, which is ubiquitously present in soil at a typical concn. of 3 mg/kg. Natural uranium has the same chemotoxicity, but its radiotoxicity is 60% higher. Due to the low specific radioactivity and the dominance of alpha-radiation no acute risk is attributed to external exposure to DU. The major risk is DU dust, generated when DU ammunition hits hard targets. Depending on aerosol speciation, inhalation may lead to a protracted exposure of the lung and other organs. After deposition on the ground, resuspension can take place if the DU contg. particle size is sufficiently small. However, transfer to drinking water or locally produced food has little potential to lead to significant exposures to DU. Since poor soly. of uranium compds. and lack of information on speciation precludes the use of radioecol. models for exposure assessment, biomonitoring has to be used for assessing exposed persons. Urine, feces, hair and nails record recent exposures to DU. With the exception of crews of military vehicles having been hit by DU penetrators, no body burdens above the range of values for natural uranium have been found. Therefore, observable health effects are not expected and residual cancer risk ests. have to be based on theor. considerations. They appear to be very minor for all post-conflict situations, i.e. a fraction of those expected from natural radiation.

L4 ANSWER 3 OF 2127 CAPLUS COPYRIGHT 2002 ACS

AN 2002:864317 CAPLUS

DN 137:356908

TI Method for making boron carbide containing ceramics in the form of films,

fibers, and nanostructured materials
IN Sneddon, Larry G.; Pender, Mark J.
PA Trustees of the University of Pennsylvania, USA
SO U.S., 14 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6478994	B1	20021112	US 2000-539182	20000330
AB	The method for making a boron carbide contg. ceramic involves pyrolyzing a precursor having .gtoreq.1 monosubstituted decaboranyl groups and .gtoreq.1 substituting group contg. carbon. The precursor may be mol., e.g., comprising two decaboranyl groups linked by a single substituting group, or polymeric, in which case the decaboranyl groups are part of the pendant group of the polymer while a portion of the substituting group makes up the polymer backbone. Examples of the precursor are 1-Polyhexenyldecaborane, dipropyldecaboranyl, polyallyldimethylsilanepropyldecaborane, and copolymer of allyltrimethylsilane and hexenyldecaborane. In either case, the substituting group may be a hydrocarbon, in which case boron carbide may be formed. Alternatively, the substituting group may contain carbon and another ceramic forming element (i.e., other than boron or carbon), such as silicon, nitrogen, or phosphorous, in which case a composite including boron carbide is formed. The precursors are relatively stable in air, allow access to both boron rich and carbon rich materials, and further allow for the formation of films, fibers, and nanostructured materials more easily than other precursors. The resulting ceramic is suitable as an abrasive wear-resistant material, ceramic armor , a neutron moderator in nuclear reactors, and potentially, for power generation in deep space flight applications.				

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 4 OF 2127 CAPLUS COPYRIGHT 2002 ACS
AN 2002:856774 CAPLUS
DN 137:341117
TI Lightweight ceramic tile having bulletproof shape
IN Sotoike, Yoshinobu; Imaeda, Naoki
PA Toray Industries, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002326861	A2	20021112	JP 2001-137067	20010508
AB	The title ceramic tile has polygonal shape with higher thickness at summits than its center. The tile is esp. suitable for armor plates, bulletproof vests, etc.				

L4 ANSWER 5 OF 2127 CAPLUS COPYRIGHT 2002 ACS
AN 2002:852566 CAPLUS
TI Dynamic recrystallization-induced flow phenomena in tungsten-tantalum (4%) [001] single-crystal rod ballistic penetrators
AU Trillo, E. A.; Esquivel, E. V.; Murr, L. E.; Magness, L. S.
CS Department of Metallurgical and Materials Engineering, University of Texas at El Paso, El Paso, TX, 79968, USA
SO Materials Characterization (2002), 48(5), 407-421
CODEN: MACHEX; ISSN: 1044-5803
PB Elsevier Science Inc.
DT Journal

LA English
AB Deformation-flow microstructures assocd. with [001] W-4% Ta penetrator fragments in a rolled homogeneous steel **armor** target exhibit dynamic recrystn. The equiaxed, recrystd. grain structure obsd. in the deformed penetrator is also assocd. with soft zones in corresponding microhardness maps. Microstructure evolution is also examd. by transmission electron microscopy (TEM) and selected-area electron diffraction (SAED).

L4 ANSWER 6 OF 2127 CAPLUS COPYRIGHT 2002 ACS
AN 2002:850291 CAPLUS
DN 137:339000
TI Quasi-unidirectional fabric for ballistic applications
IN Cunningham, David Verlin; Pritchard, Laura E.
PA Can.
SO U.S. Pat. Appl. Publ., 13 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002164911	A1	20021107	US 2002-135573	20020501
PRAI	US 2001-288568P	P	20010503		

AB A ballistic fabric has unidirectional ballistic-resistant yarns in .gtoreq.2 layers. The layers are at 90 .+-. 5.degree. with respect to each other. The ballistic-resistant yarns are stabilized by being woven in a second fabric formed of yarns having a substantially lower tenacity and tensile modulus than the ballistic-resistant yarns. Thus, a woven fabric of 1330 dtex Spectra warp/fill fibers and 78 dtex nylon warp/fill fibers had V-50 ballistic performance rating 328 m/s; vs. 280 m/s for the control of elastomer coated Spectra fibers.

L4 ANSWER 7 OF 2127 CAPLUS COPYRIGHT 2002 ACS
AN 2002:840833 CAPLUS
TI Prestressed ceramics and improvement of impact resistance
AU Bao, Yiwang; Su, Shengbiao; Yang, Jianjun; Fan, Qisheng
CS China, China Building Materials Academy, Beijing, PR, 100024, USA
SO Materials Letters (2002), 57(2), 518-524
CODEN: MLETDJ; ISSN: 0167-577X
PB Elsevier Science B.V.
DT Journal
LA English
AB The shrink-fit technique has been used to study the effect of prestress and confinement on ceramic materials. Calcn. of prestress in ceramics tile wrapped by metal and optimized design for the composite are presented. Alumina tile confined with aluminum alloy, which was in a state of triaxial compression, was chosen as the target in impact tests to investigate the impact resistance of prestressed ceramics. The results from two types of impact tests indicate that both impact resistance and **armor**-piercing resistance are greatly enhanced due to the presence of prestress and compact confinements, and that triaxial prestress is much better than biaxial prestress for enhancing the impact resistance of ceramics.

L4 ANSWER 8 OF 2127 CAPLUS COPYRIGHT 2002 ACS
AN 2002:832736 CAPLUS
DN 137:339661
TI High-energy-density composite explosive containing thermite composition dispersed in primary high explosive
IN Jones, John W.
PA Lockheed Martin Corporation, USA
SO PCT Int. Appl., 27 pp.
CODEN: PIXXD2

DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002085816	A2	20021031	WO 2002-US12477	20020423
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRAI US 2001-840909 A 20010425

AB A high-energy-d. explosive, esp. suitable for high penetration, consists of a reducing metal and a metal oxide (e.g., a thermite system) dispersed throughout a conventional (primary) high explosive. The av. d. of the metal oxide and the reducing metal is .gtoreq.1.95 g/cm3. Upon detonation of the primary explosive, the thermite reaction occurs at a rate that is about the same as the detonation rate of the primary explosive (e.g., about 6 mm/.mu.s), and the thermite reaction is completed within 1 ms. The particle sizes of the thermite components are selected to tailor a peak detonation pressure of the payload. Suitable primary explosives include TNT, RDX, plastic-bonded explosives, and AFX-type explosives. A polymer binder (e.g., a fluoropolymer) is present to bind the primary explosive and the thermite components together; in addn., the thermite components are bound together by a metal oxide, preferably B2O3. Suitable thermite components include Al, Zr, Al-Zr alloy, and Al-Zr intermetallic (as the metals) and WO2, PbO, WO2.72, WO2.90, NiO, WO3, tenorite (CuO), MnO2, and cuprite (Cu2O) (as the metal oxides).

L4 ANSWER 9 OF 2127 CAPLUS COPYRIGHT 2002 ACS

AN 2002:829485 CAPLUS

TI Pre-impact damage assessment of DRA metal matrix composite encapsulated SiC ceramics

AU Wells, J. M.; Green, W. H.; Rupert, N. L.

CS Army Research Laboratory, Weapons Materials Research Directorate, APG, MD, 21005-5069, USA

SO Ceramic Engineering and Science Proceedings (2002), 23(3), 181-191

CODEN: CESPDK; ISSN: 0196-6219

PB American Ceramic Society

DT Journal

LA English

AB Encapsulation of monolithic ceramic materials is one concept for confinement of candidate **armor** ceramic materials which enables both constraint during ballistic impact and retention of damage fragments for post-impact evaluation by either destructive or non-destructive methods. Non-destructive examn. is essential for the pre-impact baseline characterization of consolidated samples, which subsequently will be tested ballistically and then further characterized for damage in the post-impacted condition. Such non-destructive characterization of exptl. samples of SiC ceramic tile material encapsulated within discontinuously reinforced aluminum metal matrix composite, DRA, was conducted using x-ray computed tomog., CT. Each sample consisted of one 10 cm .times. 10 cm .times. 1.2 cm thick SiC ceramic tile encapsulated with 356/SiCp/60v%DRA forming a test sample of 15.2 cm .times. 15.2 cm .times. 5.3 cm thick overall dimensions. Both digital x-ray radiog. and computed tomog. were performed on the samples using a custom built ACTIS 600/420 x-ray computed tomog. scanner from Bio-Imaging Research, Inc., to characterize and document the "as fabricated" samples prior to planned ballistic testing. Results of three samples fabricated by the pressure infiltration casting

process indicated pre-existing voids in the MMC encapsulant material and substantial multiple cracks in both the MMC and the SiC materials. Such defects in the as-fabricated samples, had they gone undetected, would have been difficult to sep. from later anticipated ballistically-induced damage. Also, significant displacement of the SiC tile was detected indicating an undesired repositioning of the SiC tile during the encapsulation casting step. A subsequent sample fabricated by a pressureless metal infiltration process revealed significantly less extensive cracking than obsd. in the previous samples. This paper discusses the application of x-ray computed tomog. (XCT) to pre-impact characterization of encapsulated ceramic target materials.

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 10 OF 2127 CAPLUS COPYRIGHT 2002 ACS
AN 2002:829475 CAPLUS
TI Instrumented Hertzian indentation of **armor** ceramics
AU Wereszczak, A. A.; Kraft, R. H.
CS Metals and Ceramics Research Branch, U.S. Army Research Laboratory,
Aberdeen Proving Ground, MD, 21005, USA
SO Ceramic Engineering and Science Proceedings (2002), 23(3), 53-64
CODEN: CESPDK; ISSN: 0196-6219
PB American Ceramic Society
DT Journal
LA English
AB There is commonality between the resulting damage in ballistically tested ceramics and Hertzian indentation. In an effort to study the parameters assocd. with the damage from the latter, a new-instrumented indentation test system was fabricated to facilitate the evaluation of (typically very hard) candidate **armor** ceramics. The indentation results from the testing with this system indicate that the utilization of: a diamond indenter; ultra high-resoln. displacement measurement; a controlled loading/unloading waveform; and a simple mech. analog model can be used in combination to quantify quasi-plastic yield and ring-crack initiation stresses that may be subsequently used to generate a plasticity-fracture map all with a single indent. A description of the test system and the indentation testing and evaluation of a hot-pressed SiC are presented.

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> log y

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	94.34	94.55
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-10.53	-10.53

STN INTERNATIONAL LOGOFF AT 13:55:24 ON 06 DEC 2002